DUPLICATE

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ZANZIBAR PROTECTORATE.

ANNUAL REPORT

ON THE

AGRICULTURAL DEPARTMENT

FOR THE YEAR

1924.

IMPERIAL BUREAU OF MYCOLOGY 24 NOV 1925

ZANZIBAR:

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1925.

ZANZIBAR PROTECTORATE.

REPORT ON THE AGRICULTURAL DEPARTMENT

FOR THE YEAR 1924.

I arrived in Zanzibar and assumed duty on the 11th May, 1924. Mr. Armstrong, Assistant Director, was in charge of the Department prior to my arrival. I desire here to record my high appreciation of the loyalty of this officer and his zeal in initiating me into an office the traditions of which were decidedly complicated. With Mr. Armstrong's long experience ever at my service the period necessary for study before action could be taken was reduced to a minimum.

It is a pleasure to record that the whole staff has worked harmoniously during the year. Although at the close extensive retrenchments were made in the interests of economy these were effected with an almost entire absence of personal hardship.

Acknowledgment of the great help freely rendered by some of the leading Arabs must be made. In establishing the identity of clove growers applying for loans or bonus it is necessary for me to have the assistance of leading Arabs.

The late Seyyid Serhan bin Nassor helped me very greatly in these matters, and after his death Sheikh Ali bin Amur Marhubi kindly came to my assistance. These services were by no means light, and these gentlemen attended my office and spent several hours there daily during the bonus and loan season.

V. H. KIRKHAM,
Director of Agriculture.

Zanzibar, 28th May, 1925.

STAFF 1924.

Rank.	Name.	Period in Residence.
Director ..	V. H Kirkham, B. Sc., F.I.C., Dip. Agric. (Cant.)	11th May to end of year.
Assistant Director ..	R. Armstrong, Dip. Agric. (Newcastle.)	Whole year.
Mycologist ..	Miss E. J. Welsford, M.B.E.	22nd August to end of year.
Inspector of Plantations	Graham Tomson	13th July to end of year.
" " " ..	Harold Waterland, Dip. Agric. (Harper-Adams)	2nd September to end of year.
Superintendent of Plantations ..	R. C. Jerrard	Resigned 31st May.
Manager of Plantations..	Harold Pearson	Whole year.

SECTION I.

GENERAL.

An informal body of Arab plantation owners frequently met in my office to discuss matters affecting the agricultural industry. The most important matter which I put before this body for discussion was the rate of pay for piece-work weeding. It was unanimously agreed that the rates of pay were exorbitant.

The views of a large number of plantation owners were obtained, and the question of piece-work *versus* day-work was carefully investigated.

Eventually agreement was reached and the following rates of pay were decided upon for piece-work weeding in the Island of Zanzibar.

CLOVE SHAMBAS.

Task.	Pay.
10 pengeles a day	... Rs. 12 per month
15 ,, ,,	... Rs. 18 per month

COCONUT SHAMBAS.

8 pengeles a day	... Rs. 12 per month
12 ,, ,,	... Rs. 18 per month

In a clove shamba is foul the rates of pay for coconuts may be given. This will become unnecessary if shambas are cleaned twice a year.

Previously rates of pay had been various. On the Government Plantations the day's task had been 10 pengeles and the monthly wage

Rs. 18 on clove land. Arabs were paying from Rs. 12 to 15 for about eight pengeles a day complicated very frequently with a ration of rice. The daily task of weeding was commonly completed between 9-30 and 10 a.m., and the conditions of affairs was appalling to anyone with experience of African labour.

The application of the new rates of pay was attended with a certain amount of anxiety. To increase the amount of work by 50% for the same pay is not a trifling matter either to employer or employed. The Arabs fully realised this and suggested that, as I was the largest employer of labour in the country, I should try first. I pressed for simultaneous action, but eventually agreed to put the new rates into effect on Government Plantations on 1st September, the Arabs binding themselves not to engage any deserters.

The Headmen of the Wanyamwezi and other tribes were brought to my office and it was explained to them that the work they had to do in Zanzibar was very much less than they had been accustomed to do in their own country whereas the pay they received was much higher. These points being conceded it was explained that the intention was that they should be better off here than at home because we wanted them to come here, but as we could not afford to pay quite so much as we had been doing they must agree to what I could afford to give them. The matter was discussed very fully with them and they were sent back to the shambas to talk with the labourers. On their return they stated that there was a general feeling that the labourers would leave if their pay was reduced. They were, however, prepared to do more work for the same pay. It was agreed that the labourers should be paid Rs. 18 per month as before and that the daily task should be 15 instead of 10 pengeles.

The new scale was duly put into force on 1st September, 1924, and only a small number deserted. These latter were promptly replaced and many of them subsequently sought re-employment at the new rates.

The Arab Community followed suit immediately afterwards. It has been stated that a large number of Arabs pay a higher rate than that agreed upon and no doubt in many cases the higher rate of pay for coconut land is paid for clove land. The condition of many shambas is such that 15 or even 10 pengeles would be too great a task. The fact that on the Government Plantations the labour has remained at the new rates indicates that there is no great attraction elsewhere.

As regards the significance of this innovation I may point out that the vote for weeding on the Government Plantations amounts to Rs. 1,74,000 per annum. The new scale of pay means that the same amount of work will be done for Rs. 1,16,000, or a saving of Rs. 58,000 per annum.

The total saving to the country in the cost of production of cloves and copra will amount to several lakhs per annum.

Amongst other matters discussed with Arabs, with the object of bringing down the cost of production, was that of harvesting expenses. As my predecessor pointed out, this item has gone up by leaps and bounds and even doubled itself in one year. The problem is rather more difficult than that of weeding and up to the present a general agreement has not been reached. I was enabled, however, as a result of these discussions, to suggest special contract conditions for clove harvesting in the Masters' and Servants' Decree shortly to be put into operation. It will probably surprise many large consumers to know that picking alone costs the producer up to fourpence per pound of dry cloves—having regard to the fact that there is a 25 per cent. duty tax. If this be borne in mind the statement that cloves should come down to sixpence per pound in London appears in its true light as an economic impossibility unless rates of pay are reduced by approximately one half. When in Pemba I found Arabs paying 16 pice a pishi for picking and a ration of rice per day thrown in. A pishi of green cloves will make about 1.2 lbs. dry cloves, so that picking alone cost Re. 1 for 4.8 lbs. of dry cloves. The Arabs were getting Rs. 11 per frasla locally for their dry cloves and were paying Rs. 7-25 for picking. Picking alone, therefore, absorbed two-thirds of the money received for the produce. In Zanzibar conditions are better and the expenses for picking are about 40 per cent. less than in Pemba

High cost of production is the root of the evil. The impoverished condition of the planters and the high rate of interest charged on loans, which agriculturists all the world over require to carry them through bad seasons and from one harvest to another, have combined with this to render the position of the clove grower, and the Pemba clove-grower in particular, almost hopeless. It is remarkable that the population of the Island Dominions of His Highness the Sultan amounts to about two hundred per square mile and yet, in spite of the fact that there is practically no industry outside agriculture, the country is to a large extent dependent upon imported labour.

Wanyamwezi from Tanganyika Territory are largely employed in general plantation work. It has hitherto been regarded as the province of the indigenous labour to carry out harvesting. The islanders certainly understand better than the mainlanders the business of picking, but as the cost of harvesting has gone up by leaps and bounds the employment of mainlanders in this work has become inevitable. That they are apt to damage trees unduly is a fact, also they do not appreciate the stage at which cloves should be picked. I have myself witnessed a mainlander bringing in a basketful of mother of cloves as the result of a day's effort, he stating that he supposed we wanted fruit and not buds. The policy of not going near the water until you can swim is futile, and we must suffer the results of ignorance in the hope that the mainlanders will return and improve in their work from year to year.

SECTION II.

DIRECT ASSISTANCE TO CLOVE GROWERS.

The direct assistance to clove growers given by Government may be classified as follows:—

(*a*) Bonus of Rs. 1½ for every ten bearing clove trees.

(*b*) Bonus of Rs. 3 paid in instalments over six years for each young tree raised under approved conditions.

(*c*) Loans free of interest granted at the commencement of harvest to meet the initial expenses of harvesting.

(*d*) Free storage of cloves in Government godowns with a liberal advance in cash, thus saving the grower from being compelled to put his cloves on the market all at once.

(*e*) Labour Bureau. This form of assistance was taken over from the Agricultural Department by the Administration on the 7th August, 1924. The Department of Agriculture is itself a great employer of labour, for this and other reasons it was considered advisable that the Administration should deal with registration and distribution of labour.

THE BONUS ON CLOVE TREES.

This is in the nature of a rebate on the Export Duty of 25 per cent. in kind imposed by Government. The amount set aside each year for this bonus is one-fifth of the average annual sum realised by Government from the sale of duty cloves during the preceding five years. It cannot be claimed that this form of rebate is exactly equitable, since neglected and poor yielding trees receive as much bonus as those upon which money is spent in cultivation and are in consequence contributing much more to the fund providing the bonus. Moreover the distribution of the bonus has entailed an enormous amount of work and for some months almost monopolised the energies of the Department. In its favour it may be claimed that it has put actual cash into the hands of the grower and that visible benefits have resulted—more cleaning of shambas has been done.

Another really great benefit has resulted—a Register of Property. When it is borne in mind that in this country the ownership of land does not involve ownership of the trees growing thereon, and that land apart from trees has a very uncertain value, it becomes apparent how necessary such an inventory is and how inadequate a land survey would be without it.

As the formulation of this scheme and the plans for its execution were already made when I arrived in the country, I submit herewith a Memorandum by the Assistant Director giving an account of the work done during the year in connection with the Bonus:—

NOTES ON THE 1924 BONUS SAFARIS.

First for Obtaining Returns, Second for Making Payments.

I am comparing the year under review with 1922. In the first instance because it is more on a par with that year when in each case there were two safaris and a great deal of pioneer work; secondly because the figures for 1923 are not reliable, and there was no pioneer work and no safaris.

It is also necessary to state here that the very low percentage of total payments in 1922 was due to a boycott of the whole scheme in its early stages. As a result a large number, particularly of the larger plantation owners, did not claim their money. With a little tact and patience the boycott was broken in 1923 and owners during that year claimed their money and also their arrears of 1922. So that from the end of 1923 the success of the scheme from this particular point of view was assured.

There was so much confusion with the 1923 payments that it was not possible to audit the accounts. There was also similar confusion with regard to the returns themselves and it was not possible to obtain the total number of clove trees in the island from them.

This state of affairs produced a protest from the Auditor with the result that a Committee was formed consisting of the Acting Treasurer, the Auditor-in-Charge and the Acting Director of Agriculture.

A very complete scheme was drawn up with permanent registers, and every shamba owner was to be given a book containing particulars of his property (clove trees) and the boundaries. Spaces were arranged for the annual payments both for bearing and young clove trees.

These records have already proved most useful, both to the Administration and Probate Departments, and our registers are being constantly referred to. The scheme is rapidly gaining the confidence of plantation owners and our books in a short time will be just as reliable as a registration of title and much more easily accessible. Already owners of shambas who are wishing to dispose of their property have come along to the office with the intending purchaser to prove to him that they have a shamba and that it was properly registered. I have even had requests from owners of purely coconut plantations to be allowed to register so as to obtain the book. These books will be found useful when the owner requires a mortgage.

In Zanzibar a considerable amount of check counting has been done and the returns have proved so reliable that the errors did not amount to 5 per cent. of the trees counted, an error so small as not to affect the payments at all.

In Pemba, owing to shortage of staff, we have not been able to do much checking.

Cost.

The cost of the 1924 agricultural census of clove trees ought really to be distributed over a number of years, because its results are per-

manent. This is more especially the case with items such as the cost of paper and printing of the books; and temporary clerical assistance required for the taking of the returns and the writing of the registers. The actual cost of operations in the two islands was Rs. 18,091-43 and of this amount no less than Rs. 13 097 was spent on temporary clerical assistance, purchase of paper for books, etc., a few items of furniture, and some numbering machines. All this is non-recurrent, and the cost therefore in future years will be very small indeed. But even including all these expenses the cost of administrating only amounts to 5 per cent. of the money paid out. [I estimate that the recurrent expenditure amounted to 2.4 per cent. of the bonus. Sd/- V. H. K.]

The number of separate shambas registered and books written was in Zanzibar 9,695 and in Pemba 16,934 or a total of 26,629, and the number of separate shambas on which payment had been made at the end of the year was 19,953. This works out 85 per cent. of those registered and is a most satisfactory result considering that the delay in obtaining the necessary paper from England and the writing of the registers so delayed the work that we were of necessity bound to make payments during the clove-picking in order to finish before the end of the year. This was unfortunate and to some extent accounts for people not having made their claims as they were away picking their cloves.

Another reason for payments not having been made on registered shambas is that some are purely coconut shambas and others contained less than nine trees and could therefore not claim anything. This latter arrangement is being altered in the future and owners can claim on five trees or over.

The amount of money paid out in bonus in Zanzibar was Rs. 152,017 and in Pemba Rs. 202,865, a total of Rs. 354,526 or no less than 90 per cent. of the total amount claimable having regard to the total number of trees registered. I think this proves beyond doubt that the scheme is highly popular.

In the near future a modification of the Agricultural Returns Decree will be necessary. With permanent crops like cloves and coconuts it is most obviously not necessary to have annual returns, but owners should be compelled to notify deaths of bearing trees and numbers of young ones planted each year before receiving their bonus. This would, of course, be an easy matter. It should also be a legal obligation to notify all sales or transfers of shambas. In cases of deaths of owners their books ought to be handed in to the Administrator-General in Zanzibar or the offices of the Administration in Zanzibar and Pemba so that due note can be taken of their property. The difficulties of these Departments in locating the property of deceased persons, as well as of ascertaining its extent, will be greatly minimised.

Sd/- R. ARMSTRONG,

February 18th, 1925.

BONUS ON YOUNG TREES.

If reference be made to Table VI on page 20 it will be seen that the clove crop fluctuates enormously and without careful inspection the figures give no impression of the expansion or decay of the industry. Analysis of these figures, however, reveals the following vital information:—

ZANZIBAR.

Average annual production decade 1904-5 to 1913-14 1,17,212 fras.
,, ,, ,, ,, 1914-15 to 1923-24 1,64,845 fras.

Increase 40 per cent.

PEMBA.

Average annual production decade 1904-5 to 1913-14 3,67,108 fras.
,, ,, ,, ,, 1914-15 to 1923-24 3,68,028 fras.

Increase 0.25 per cent.

These figures show that there is a remarkable difference in the condition of the clove industry in the two islands.

At no time has there been any reasonably good estimate of the number of trees on the two islands, nor any record of plantings and deaths kept. A number of factors are involved in producing the crop results above mentioned, but it is practically certain that the principal one is the difference in average age of the trees. The plantations in Pemba, having escaped destruction by the cyclone of 1872, are much older than those of Zanzibar—probably 40 years older. If other factors—differences in the amount of replanting—are small in comparison with this outstanding difference we may deduce from these figures that the increase in yield between trees of an average age of 35 years (Zanzibar first decade quoted) and those of 45 years of age (second decade) is 40 per cent., whereas the yield of trees does not increase after 75 years (Pemba's first decade mentioned).

Without extensive replanting the production of cloves in the Island of Zanzibar may very well go on increasing for some time, although the condition of soil and climate not being the same in both islands it is not possible to say that the increase in production would continue for another 40 years. The condition in Zanzibar is, however, satisfactory in comparison with Pemba.

It may well be urged that already there are signs of over-production in cloves—the price realised in the world's market does not give a good return on capital invested in the industry. The maintenance of a steady production in Pemba might, therefore, lead an unthinking person to regard the position as eminently satisfactory.

If this steady production were due to proper estate management —the permanent maintenance of a definite average age of trees by regular cutting out of old and replanting with new ones—the result

would indeed be satisfactory. Such is unfortunately not the case, and the remarkable proximity of the figures for yield in the two decades almost certainly represents the period of maximum production in trees, the majority of which are in the same age group. The general appearance of the trees indicates that such is the case—although there are, of course, quite a lot of younger trees in the Island. The upward curve of the production, seen in the case of Zanzibar, has, in the case of Pemba, reached its highest point and its descent is liable to be more rapid than its ascent. In Amboina I saw a few trees which were reputed to have turned the century in age. According to the evidence of natives with whom I spoke their crops were now only trifling compared with the pickings which they themselves had made formerly. Trees over 80 years of age frequently bear extremely well, but a large proportion of the crop is on the crown and inaccessible. Pickers naturally require a higher rate of pay working on old trees and the economic life of a clove tree is therefore less than its actual.

Regeneration is therefore necessary merely to maintain the clove supply—there is little danger of our increasing it, however successful in our efforts. It is also indicated that the centre of gravity will move from Pemba to Zanzibar in the course of 25 years, and not improbably later on the latter will have to do for Pemba, during a period of regeneration, what Pemba did for Zanzibar after the cyclone of 1872, viz., supply the worlds markets and pay for regeneration in the other Island. If such should happen clove production would be so stimulated in other parts of the world that it might be better for Pemba to choose another industry rather than risk creating a large over-production in cloves.

These matters being seen and understood, it would appear to be a sound policy to take steps so to maintain a steady and sufficient supply of cloves that outside competition will not be stimulated

The granting of a Bonus of Rs. 3 for every young tree which is suitably planted and raised to the age of six years is the Government scheme for maintaining the industry. It has not been in operation for a sufficient length of time to enable an opinion to be formed as to its success or otherwise. A clove tree takes eight to ten years to give any return, and is therefore not the kind of crop which appeals to those devoid of capital. I am confident that without some form of financial encouragement the regeneration of clove plantations would not take place and the industry would cease to be one of paramount importance in less than half a century.

Comparatively few shamba owners have land suitable for cloves not already under that crop, so that regeneration to be thorough would involve removal of all trees above a certain age and replanting. To remove trees still giving a return and replant with the certain knowledge that there will be no appreciable return on the young trees for ten years, but all the expenses of cleaning, planting, and ten years

weeding to be borne, is a measure too heroic for any individual to consider. All that the private owner can do is to fill gaps caused by deaths and try to squeeze into his shamba a few more young trees in odd corners.

The bonus given by Government has certainly encouraged all this, and, as is very natural, there has been a lot of unsatisfactory planting. Careful inspection has to be made of every young plant. If the plant itself is too young or undersized, if the soil is unsuitable, if the plant is within 21 feet of any tree, no bonus is given.

Table III on page 18 indicates the activity in 1924.

From what has previously been said about the relative condition of the clove industry in Zanzibar and Pemba it is noteworthy that in the latter island where, as we have seen, regeneration is of greater importance than in Zanzibar, the replanting is disproportionately small. During the year 54,483 clove seedlings were issued by the Department to plantation owners in Zanzibar and 15,420 in Pemba. It must not be supposed, however, that this in any way represents the relative amount of replanting in the two islands. In Pemba the growers can more easily obtain their own seedlings and transport of seedlings from a Government nursery is a matter of considerable difficulty owing to scarcity of roads.

Sealing has fallen behind in both islands owing to the inspection staff having been engaged upon checking returns on bearing trees. Another year the latter will be reduced and sealing brought up to date.

LOAN FOR HARVESTING EXPENSES.

Loans free of interest are extremely helpful to the clove grower at the commencement of harvest. They enable him to buy mats, etc., and to make advances to pickers—at present his only way of securing labour. The following table gives particulars of these loans:—

1924 loans for harvesting, free of interest.

Island	Number of loans.	Amount Rs.
Zanzibar	151	79,315
Pemba *	521	48,835
Total	672	1,28,150
* Weti	207	25,020
* Chake Chake	180	12,775
* Mkoani	134	11,040
Total	521	48,835

FREE STORAGE OF CLOVES.

The season 1923-24 was a very poor one and there was no occasion for growers to store cloves.

The 1924-25 crop was above the average and it was obviously undesirable to flood the market in the early part of the season. Prices kept up very well for three or four months and consequently the storage accommodation available was in excess of requirements. The knowledge that growers could have free storage and an advance of Rs. 7 or 8 per frasla had undoubtedly a good effect upon the market.

The following table gives particulars of the number of growers who availed themselves of storage, the quantity stored and amount advanced against the cloves:—

1st July to 31st December, 1924.

Number of individuals	...	33
,, ,, taking loans	...	26
Fraslas of cloves stored	...	13,100
Fraslas of cloves upon which cash advanced		7,246
Amount advanced		Rs. 51,450

SECTION III.

MEASURES TO ENFORCE THE PLANTATIONS PRESERVATION DECREE.

In every country legislation is made to protect Agriculturists from damage due to neglect or mismanagement on the part of their neighbours. Weeds, vermin, parasites, insect pests, disease and fire, are the chief dangers from which the plantation owner requires protection.

The Plantations Preservation Decree was promulgated with that object in view. The principal activity in the past was prosecution for having misletoe on trees. During the past year no legal action has been taken in this matter. Shamba owners have been given orders to remove misletoe (kirukia) and to clean land which had become so foul as to constitute a danger to their neighbours.

I am convinced that the condition into which many shambas have fallen is entirely due to financial inability of the owners to do the necessary work. To inflict a fine is merely to aggravate the cause.

The present policy of the Department is to order the removal of a danger, and if the owner states that he is unable through lack of labour or money to do so then the Department will undertake the work and deduct the expenses from the bonus on trees.

SECTION IV.

AGRICULTURAL INDUSTRY DURING THE YEAR.

Cloves.

Statistical information regarding the clove and coconut industries is given in the appendix

As regards 1923-24 the clove crop was very small, amounting to only 3,11,794 fraslas. The season commencing July, 1924, was estimated at about six lakhs of fraslas. At the time of writing exact figures are not available, but it is quite certain that it exceeded seven lakhs. The average crop for the past twenty years is 5,12,597 fraslas, hence the 1924-25 season was well above the average. For the past ten years there has been a regular alternation of large and small harvests and 1925-26 should therefore be below the average. Early forecasts however indicate that it will not fall much below the average.

The 1924-25 crop exceeded the estimate largely on account of more complete picking than has been usual in recent years. The crop harvested depends not only upon the trees but also upon the labour and the weather, and the season 1924-25 was particularly satisfactory as regards labour and quite up to the average in respect of weather conditions.

As previously stated, prices were good and the year as a whole was a very favourable one for the producer.

Coconuts.

The export of copra during the year reached the record figure of 9,88,393 fraslas, the average for the previous ten years being 5,34,191 fraslas and the previous record being 9,07,329 fraslas in 1919, when shipping facilities enabled a large hold over to be exported.

The quality of copra produced in the Islands is generally poor. The climate makes sun-drying difficult if not impossible during several months of the year and the fire drying practised is of the crudest description.

The Department of Agriculture has instituted a copra factory at Mtoni, about four miles out of town, for demonstrational purposes. The copra here is made from the nuts on the adjacent Government Plantations which carry about 22,000 palms. The price realised at the sales in town has been several annas per frasla above local prices, but it is possible that a greater premium would be obtained in the overseas market for goods of the quality produced. The local market will only improve when the general quality of copra has been raised.

Thanks to the attention which chemists have given to the oil industry errors in production can be rectified at the manufactory and, however rancid, mouldy or burnt, the copra may be the oil expressed therefrom can be neutralised, deodorised and decolourised. Naturally, raw material requiring such treatment fetches a lower price on the market. The improvement in the quality of local copra is worthy of attention, but it must be done in the business spirit, that is to produce the quality of article which pays best. This may be far from the best quality.

The Department's experiments inaugurated during the last three months of the year are designed to test this question, and it will naturally take time to evolve the most economical method of employing labour to effect the desired result.

The exacting requirements of Government procedure in financial transactions are not in all ways those suited to commercial enterprises, and in many ways the direction of affairs is handicapped by the necessity of conforming to rules not designed to meet the conditions obtaining in the running of a business enterprise. The results of this commercial experiment will, however, be of considerable value.

SECTION V.

GOVERNMENT PLANTATIONS.

During the year the organisation of the Government Plantations has been overhauled and very materially altered. I found that some plantations were overstaffed whilst others were badly neglected. By arranging the plantations into groups, six in Zanzibar and three in Pemba, and placing the most reliable and experienced men in charge as group overseers, a more uniform system of working becomes possible. Under the group overseers are assistant overseers who are responsible for the work and the accounts on the individual shambas. The designation "Plantation Clerk" has been dropped and those clerks who were not competent to become assistant overseers have been retrenched. The number of headmen has been greatly reduced. The reorganisation has resulted in about fifty posts being abolished and much greater efficiency being obtained.

The year's working shows a net profit of three lakhs of rupees. If the plantations are worth 27 lakhs and the working capital required is three lakhs the profit is 10 per cent. Deducting a quarter of the clove crop as this would be taken in duty from a private producer the return on capital is reduced to 6.2 per cent. This figure was slightly exceeded in the previous year. Were the plantations sold Government would undoubtedly lose revenue. It must be remembered, moreover,

that the plantations are far from being fully developed and that a proportion of the expenditure is going into development. With a sound policy of estate management in operation—a policy not liable to interruption—the plantations will steadily improve and the return on capital will exceed 10 per cent. even when the duty cloves have been deducted.

The reduction in the cost of production of cloves in the island through revision of rates for piece work could not have been accomplished had not Government been in a postion to lead the way, and in the future we may expect that any considerable improvement in the industry will be initiated on these plantations. Without them the Department of Agriculture would be deprived of the means of masterly action—the only way to meet the present situation.

Provision has been made for increasing the number of plantation pupils—youths of some education who come to gain experience in estate management—so that the Government Plantations may increase their usefulness as training grounds for the next generation of agriculturists.

It is worthy of remark that there was no European Officer exclusively in charge of this branch of the departmental activity.

Owing to the extraordinarily heavy work entailed in the shamba registration and bonus scheme the Manager of Plantations had to be enrolled for service in the general work. Inspection and supervision of the Government Plantations was therefore very largely done in what should have been the leisure time of the European staff. I should like to express my appreciation of the services of the senior overseers. Most of these men are Swahilis and their efficiency has exceeded my expectation. More European supervision is, however, necessary for the economical development of the plantations. Provision was made in the estimates for 1925 to admit of one European Officer giving his undivided attention to the management of the plantations, that is one European to supervise an organisation of a capital value of £200,000. I do not say that it is adequate—it is not.

V. H. KIRKHAM,

Director of Agriculture.

Zanzibar, 8th June, 1925.

REPORT OF THE GOVERNMENT MYCOLOGIST

FOR THE YEAR 1924.

Owing to absence for leave this report deals only with the last four months of the year.

In September the apparatus was brought from Pemba and was installed in the new laboratory in Zanzibar.

The work done this year has been chiefly with the diseases of the coconut. At present the percentage of nuts obtained from the trees in Zanzibar is very low; this is partly due to the poor variety grown, but disease is also responsible for the poor quantity and quality of the nuts.

An examination of various shambas has shown that a small crop is associated with excessive fall of the young nuts and more especially with the condition known as gumming. This disease of gumming is very widespread throughout the island and has recently caused considerable havoc in Kenya and Tanganyika. Its cause is at present unknown and is now under investigation in the laboratory and at Marhubi shamba.

A disease of the coconut seed beds is also under investigation.

Data is being collected with the object of raising by hybridisation a better race of coconut trees free from disease and capable of bearing a larger crop.

Only two brief safaris have been made to Pemba. Several of the clove experimental areas were visited and it was found that the treatment which had been given to the diseased plots was proving satisfactory and the spread of disease was arrested.

The following fungi amongst others have been recorded for 1924:—

Diplodia epicoccus on coconut.
Pestalozzia palmarum on coconut.
Glœosporium spec. on coconut.
Sphæronema spec. nov. on coconut.
Fusarium spec. on coconut.
Triposporium spec. nov. on sweet potato.
Septoglœum manihotis on mohogo.
Glœosporium musaram on banana.
Kuehneola Fici on fig.
Trabutia spec. on fig

E. J. WELSFORD,
Mycologist.

Zanzibar, 15th June, 1925.

Table I.

General Summary of 1924 Bonus to Clove Growers.

Island	No. of bearing clove trees registered.	Total claims registered	Total claims bonus non-payable.	Total claims bonus payable.	Total claims paid.	Total claims unpaid 31-12-24.	Percentage paid.
Zanzibar ..	1,125,937	9,695	2,726	6,969	5,677	1,292	81%
Pemba ..	1,642,651	16,934	586	16,348	14,276	2,072	87·3%
Total ..	2,768,588	26,629	3,312	23,317	19,953	3,364	85.5%

Island.	Total bonus payable. Rs.	Bonus paid. Rs.	Bonus unclaimed. Rs.	Percentage paid.
Zanzibar ..	1,62,151	1,52,017·50	10,133·50	93·75%
Pemba ..	2,31,375	2,02,865·00	28,510·00	87·60%
Total ..	3,93,526	3,54,882·50	38,643·50	90·1%

BONUS TO CLOVE GROWERS 1924, COST OF SAFARIS.

Pemba.

	Rs. Cts.	Rs. Cts.
Wages, temporary staff ...	1,786 10	
Wages, permanent staff ...	2,437 00	
		4,223 10
Travelling	...	1,670 13
Transport	...	323 50
Incidentals	...	40 46
Half of Rs. 2,352-25 cost of furniture, paper, etc.	...	1,176 12
	Total Rs.	7,433 31

Comparison between the years 1922 and 1924 shewing percentage of bonus paid.

Year.	Zanzibar.	Pemba.	Total.
1922	31.9	62.8	51.7
1924	93.75	87.6	90.1

Comparison between the years 1922 and 1924 shewing cost of making payments expressed as percentages of bonus paid.

Year.	Zanzibar.	Pemba.	Total.
1922	...	...	7.2
1924	7.0	3.6	5.1

BONUS TO CLOVE GROWERS 1924, COST OF SAFARIS.

Zanzibar.

	Rs.	Rs. Cts.
Wages, temporary staff ...	5,743	
Wages permanent staff ...	1,640	
		7,383 00
Travelling	...	1,626 00
Transport	...	473 00
Purchases; furniture, numbering machines, etc. ...	Rs 419 00	
Paper for printing books	1,933 25	
Total Rs.	2,352 25	
One half of Rs. 2,352-25 charged to Zanzibar	...	1,176 12
	Total Rs.	10,658 12

TABLE II.

Survey of check on returns of bearing clove trees, 1924.

Survey.			Staff employed.
Percentage of errors:—	Plantations	Trees	
Less than 1% ...	4	7	4 Asst. Sub-inspectors 4 Rangers 16 Labourers
Between 1 and 5% ...	76	628	
„ 6 and 10% ...	39	337	
„ 11 and 25% ...	62	635	
„ 26 and 50% ...	24	278	
Over 50% ...	7	611	
Found correct ...	728	94 870	
Total checked ...	940	97,366	

TABLE III.

Number of applications for sealing.		Number sealed 1924.		Number paid 1924.		Staff employed.
Plantations.	Trees.	Plantations visited.	Trees sealed.	Plantations.	Amount.	
		ZANZIBAR			Rs.	
956	94,468	428	23,247	396	22,601	
				5	151*	2 Sub-Inspectors 1 Assistant Sub-Inspector 3 Rangers 6 Labourers
		PEMBA				
					24,407*	
18	4,820	...	...	...	...	
974	99,288	428	23,247	401	47,159	

* These amounts have been paid in 1924 for 1922 plantings.

Table IV.

Clove deliveries compared with former years:—

Month.	1919. Zanzibar	Pemba	Total	1920. Zanzibar	Pemba	Total
	fras.	fras.	fras.	fras.	fras.	fras.
January	39,628	75,663	115,291	24,340	18,319	42,659
February	33,230	76,330	109,560	11,050	9,468	20,518
March	20,714	40,540	61,254	4,353	8,208	12,561
April	11,007	34,596	45,603	3,874	6,895	10,769
May	16,249	26,878	43,127	2,012	3,868	5,910
June	5,741	16,289	22,030	644	1,055	1,699
July	5,170	13,405	18,575	982	9,592	10,574
August	8,964	19,763	28,727	4,598	1,573	6,171
September	4,177	26,221	30,398	8,898	4,504	13,402
October	8,833	30,565	39,398	6,461	9,734	16,195
November	7,483	21,042	28,525	17,995	26,144	44,139
December	12,917	9,834	22,751	16,972	25,112	42,084
Total	174,113	391,126	565,239	102,209	124,472	226,681

Month.	1921. Zanzibar	Pemba	Total	1922. Zanzibar	Pemba	Total
	fras.	fras.	fras.	fras.	fras.	fras.
January	47,061	70,184	117,245	9,948	12,337	22,285
February	62,006	83,037	145,043	3,288	11,252	14,540
March	29,382	26,590	55,972	1,093	6,417	7,510
April	22,493	22,851	45,344	1,021	9,792	10,813
May	8,098	19,510	27,608	837	7,107	7,944
June	6,885	17,615	24,500	539	8,716	9,255
July	15,023	10,554	25,577	911	59	970
August	7,557	20,365	27,922	9,943	1,520	11,463
September	4,721	30,653	35,374	17,631	23,669	41,300
October	7,465	35,950	43,415	30,282	92,075	122,357
November	8,056	21,392	29,448	28,336	118,234	146,570
December	6,271	26,447	32,718	29,579	141,675	171,254
Total	225,018	385,148	610,166	133,408	132,853	566,261

Table V.

Clove deliveries 1923/1924.

Month.	1923. Zanzibar	Pemba	Total	1924. Zanzibar	Pemba	Total
	fras.	fras.	fras.	fras.	fras.	fras.
January	65,298	107,218	172,516	13,933	15,037	28,970
February	47,409	67,056	114,465	17,454	13,532	30,986
March	31,827	34,245	66,072	6,184	12,904	19,088
April	14,400	27,327	41,727	2,923	5,680	8,603
May	4,875	30,371	35,246	1,044	3,308	4,352
June	9,716	31,333	41,049	385	6,856	7,241
July	7,656	26,840	34,476	341	2,721	3,062
August	4,100	17,968	22,068	2,235	26,409	28,644
September	7,764	31,980	39,744	23,358	88,072	111,430
October	6,197	39,771	45,968	43,968	90,716	134,684
November	4,960	43,663	48,623	43,274	74,445	117,719
December	2,447	19,228	21,675	54,090	51,365	105,455
Total	206,629	477,000	683,629	209,189	391,045	600,234

Table VI.

Protectorate clove crops for the past 20 seasons:—

Season.	Zanzibar	Pemba	Total
	Fras.	Fras.	Fras.
1904/05	81,303	584,208	665,511
1905/06	178,435	129,735	308,170
1906/07	63,004	203,496	266,500
1907/08	213,662	541,993	755,655
1908/09	165,727	449,691	615,418
1909/10	109,678	300,047	409,725
1910/11	45,194	139,307	184,501
1911/12	216,507	582,153	798,660
1912/13	31,018	104,368	135,386
1913/14	145,586	638,094	783,680
1914/15	194,920	331,389	526,309
1915/16	141,641	655,116	796,757
1916/17	208,716	302,919	511,635
1917/18	63,958	234,239	298,197
1918/19	259,273	565,229	824,502
1919/20	93,847	168,703	262,550
1920/21	231,831	316,446	548,277
1921/22	65,819	200,983	266,802
1922/23	291,417	690,498	981,915
1923/24	75,027	236,767	311,794
Average 20 Seasons	143,828	368,769	512,597

Note.—Season—1st July to 30th June.

One frasla equals 35 lbs.

Table VII.

Annual Clove Exports, Pemba.

Year.	Weti District.						Chake-Chake District.			Mkoani District.					Total Pemba.
	Weti.	Mtambwe.	Jungum.	Kipangani (Matanga twani)	Msuka	District Total.	Chake.	Kiswani.	District Total.	Jambangome.	Mkoani.	Fufuni.	Kengeja.	District Total.	
	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	Fs.	
1914	88,433	13,786	5,721	8,666	6,594	1,23,200	85,779	13,550	1,09,2[illegible]	45,043	13,988	10,347	21,826	91,804	3,24,283
1915	1,64,655	25,072	12,992	21,738	11,1[illegible]6	2,35,58[illegible]	1,46,913	46,3[illegible]0	1,9[illegible],243	79,069	26,732	40,228	46,693	1,92,722	6,21,548
1916	1,17,387	26,709	12,468	7,3[illegible]0	5,9[illegible]0	1,69,519	84,807	28,707	1,13,5[illegible]4	62,[illegible]31	14,788	22,144	42,279	1,42,142	4,25,175
1918	76,309	17,786	15,555	10,503	5[illegible]4 9	1,2[illegible],582	1,25,634	16,6[illegible]3	1,41,666	74,253	28,155	10,583	37,815	1,50,804	4,18,052
1919	1,40,562	18,810	10,2[illegible]1	7,4[illegible]7	5,763	1,82,831	77,261	28,4[illegible]3	1,05,7[illegible]4	51,370	16,964	13,876	26,807	1,09,017	3,97,572
1920	31,674	3,304	1,[illegible]0	1,001	4,874	41,863	50,311	5,499	35,8[illegible]0	16,433	2,096	6,[illegible]23	11,823	37,27[illegible]	1,14,948
1921	1,04,33[illegible]	13,302	10,65[illegible]	7,714	9,66[illegible]	1,44,668	93,601	20,740	1,1[illegible],34[illegible]	12,4[illegible]4	55,703	26,131	44,756	1,39,0[illegible]4	3,98,083
1922	1,18,000	17,700	[illegible],400	7,50[illegible]	6,700	1,53,300	1,07,000	37,500	1,44,500	76,800	16,200	51,100	45,400	1,89,200	4,87,000
1923	1,23,688	29,244	18,8[illegible]4	12,[illegible]08	4,897	1,98,951	1,19,289	34,196	1,53,485	53,079	15,490	27,149	49,695	1,45,313	4,97,749
1924	88,472	26,387	7,[illegible]09	7,225	4,[illegible]96	1,34,139	97,033	35,516	1,32,549	56,240	30,153	38,806	37,254	1,62,453	4,29,141
Average 11 Years	98,588	18,476	9,358	9,020	6,393	1,41,841	93,066	25,868	1,15,933	50,047	20,447	23,627	34,100	1,28,2[illegible]1	[illegible],35,995

Note.—This table shows the various places from which cloves, etc., are shipped in Pemba and is connected with the question of road provision; and facilities for getting produce to Zanzibar in better condition than is possible under the present system of carriage by canoes and dhows.

TABLE VIII.

Export of cloves to different Continents from 1919 to 1924 in fraslas of 35 lbs. each:—

Continent	1910	1911	1912	1913	1914	1915	1916
Europe	137,168	224,124	173,356	251,133	163,074	264,857	239,608
America	31,329	100,311	73,615	56,443	99,998	128,409	62,429
Asia	194,521	2,487,491	186,852	193,501	218,793	329,295	272,340
Africa	3,658	5,712	1,947	7,858	3,004	3,881	5,132
Australia	..	..	..	..	..	..	..
Total	366,676	2,817,638	435,770	508,935	484,869	726,442	579,509

Continent	1917	1918	1919	1920	1921	1922	1923	1924
Europe	102,904	27,729	172,927	93,698	193,738	185,629	308,890	155,197
America	51,946	45,834	42,699	29,225	104,208	120,256	102,938	111,760
Asia	298,284	241,979	359,595	124,502	230,355	273,014	224,819	255,379
Africa	35,609	160,042	39,982	4,321	4,550	12,662	4,210	15,600
Australia	..	..	..	..	2,496	5,635	1,210	3,853
Total	488,743	475,584	615,203	251,746	535,347	597,196	642,067	541,789

Figures for previous years are given in my 1910 Annual Report.

TABLE IX.

Comparative prices of cloves and stems in London and in Zanzibar (pence per lb.) 1924:—

Month.	London.					Zanzibar.		
	Penang.	Amboyna.	Madagascar.	Zanzibar.	Stems.	Zanzibar.	Pemba.	Stems.
January ...	33·00	16·50	16·00	15·75	4·00	12·25	12·00	3·25
February ...	33·00	16·50	16·00	14·50	4·00	11·75	11·00	3·00
March ...	33·00	16·50	16·00	14·00	4·00	11·50	10·50	2·75
April ...	33·00	16·50	16·00	12·50	4·00	12·00	10·50	2·50
May ...	33·00	16·50	16·00	12·00	4·00	11·75	11·00	2·75
June ...	33·00	16·50	15·00	11·50	4·00	10·00	9·25	3·25
July ...	33·00	16·50	14·50	13·00	4·00	11·50	10·50	3·00
August ...	33·00	16·50	14·50	13·00	4·00	10·00	8·50	2·00
September ...	33·00	16·50	14·50	13·00	4·00	8·50	8·00	2·00
October ...	33·00	16·50	14·50	12·75	4·00	9·50	8·50	2·75
November ...	33·00	16·50	14·50	12·50	4·00	10·00	9·25	2·75
December ...	33·00	16·50	14·50	12·50	4·00	9·00	8·75	2·50

TABLE X.

Average prices of cloves during 1924, month by month, in rupees compared with the five previous years:—

Month.	1919. Zanzibar.	Pemba.	Stems.	1920. Zanzibar.	Pemba.	Stems.
January	13.75	12.03	...	29.79	28.14	3.38
February	10.84	10.26	...	30.50	29.03	3.94
March	10.69	10.49	0.87	29.00	28.25	2.84
April	...	10.64	0.56	30.19	28.96	2.88
May	14.71	13.06	0.68	...	29.39	2.70
June	17.81	16.62	...	...	28.62	2.25
July	...	20.91	0.75	22.00	22.03	2.10
August	24.08	22.40	1.71	...	19.50	2.31
September	23.00	21.79	1.84	...	21.09	2.37
October	26.93	24.55	2.51	24.87	20.97	2.19
November	32.72	30.42	3.70	14.87	14.25	1.69
December	33.15	31.45	3.75	14.50	12.06	1.62
Yearly Average	20.76	18.72	1.82	24.46	23.52	2.52

Month.	1921. Zanzibar.	Pemba.	Stems.	1922. Zanzibar.	Pemba.	Stems.
January	...	11.37	1.44	29.67	29.65	7.81
February	...	12.85	1.43	27.65	27.42	7.17
March	15.11	13.95	1.95	25.23	23.62	6.71
April	15.86	14.84	2.32	25.38	24.90	6.34
May	16.02	14.58	3.08	27.54	26.12	6.56
June	16.29	14.91	3.41	26.10	22.67	6.50
July	22.91	21.00	4.52	24.07	20.97	6.25
August	26.02	24.03	5.94	23.92	21.84	5.89
September	26.06	24.19	5.46	20.56	19.05	3.81
October	27.30	25.12	6.25	16.72	15.00	3.92
November	30.80	28.02	6.79	13.91	12.30	2.95
December	31.37	28.67	6.49	13.69	13.31	2.98
Yearly Average	22.77	19.46	4.17	22.87	21.40	5.57

Month.	1923. Zanzibar.	Pemba.	Stems.	1924. Zanzibar.	Pemba.	Stems.
January	18.04	17.34	4.38	26.80	26.51	6.94
February	17.19	18.19	5.14	25.51	23.87	6.50
March	18.15	20.47	5.01	25.17	23.12	5.77
April	16.65	19.94	4.44	26.08	22.96	5.25
May	16.12	19.31	4.16	25.50	23.84	5.87
June	18.70	21.42	4.85	21.72	20.01	7.00
July	23.62	24.40	5.78	24.83	22.58	6.31
August	23.97	24.75	5.19	21.28	18.97	4.40
September	24.12	23.33	5.36	18.83	17.07	4.30
October	27.64	26.11	6.19	20.79	18.91	5.55
November	28.49	27.50	7.14	21.22	20.07	5.62
December	28.94	27.75	7.29	19.75	19.41	5.30
Yearly Average	21.76	22.54	5.41	23.12	21.44	5.73

TABLE XI.

Export of copra (produced in the Protectorate) for the past 10 years, and average price of copra per frasla of 35 lbs.

Year.	Fraslas.	Average price per frasla of 35 lbs.
		Rs. Cts
1914	5,42,372	3 87
1915	5,49,472	3 73
1916	3,50,238	4 72
1917	4,21,316	7 10
1918	2,03,616	3 71
1919	9,07,329	5 31
1920	5,38,595	6 59
1921	7,57,990	6 60
1922	4,69,878	5 33
1923	6,01,110	4 82
1924	9,88,393	4 85

TABLE XII.

Monthly average price of copra 1924.

Month.	Per frasla	Equal to £ per ton.
	Rs. Cts.	£. s. d.
January	4 97	21 4 1
February	5 18	22 2 0
March	5 30	22 12 3
April	4 87	20 15 7
May	4 53	19 6 7
June	4 65	19 16 10
July	4 83	20 12 2
August	4 91	20 19 0
September	4 85	20 13 10
October	4 83	20 12 2
November	4 80	20 9 7
December	4 53	19 6 7
Yearly average	4 85	20 14 2

GOVERNMENT PLANTATIONS.

Groups Tabulated.

Group No.	Plantation treated.	Trees.				Overhead Staff.
		Cloves.		Coconuts.		
		Bearing.	Young.	Bearing.	Young.	
	Zanzibar.					
1	Marseilles	..	..	..	..	..
	Manyame	..	..	..	..	..
	El-Hathara ..	..	..	..	..	..
	Basra	..	..	..	..	1 Overseer.
	Miwani	28,692	4,320	42,055	6,616	3 Asst. „
	Darajani	..	..	..	..	8 Headmen.
	Kitumba	..	..	..	..	..
	Kinaoni	..	..	..	..	..
2	Kizimbanis ..	..	..	..	..	..
	Mlangos	..	..	..	..	..
	Kipange	..	..	..	..	1 Overseer.
	Kinuni Moshi ..	32,105	7,746	20,426	31,602	6 Asst. „
	Kidichi and Mdo ..	..	..	..	..	8 Headmen.
	Bumbwi Sudi and Kichwele ..	..	..	..	..	..
3	Chukwani	..	..	..	..	..
	Mazizini	..	..	..	..	..
	Migombani ..	..	..	..	..	1 Overseer.
	Kisaoni	354	..	12,357	30,400	1 Asst. „
	Sebleni and Town Shambas ..	..	..	..	..	4 Headmen.
	Walezo and Chumbuni	..	..	..	..	..
4	Betelras	..	..	..	..	1 Overseer.
	Mtoni	308	..	17,981	18,826	1 Asst. „
	Marhubi	..	..	..	..	2 Headmen.
	Kibweni	..	..	..	..	..
5	Selem	..	..	..	..	..
	Kitope	..	..	..	..	..
	Pangeni and Ngonjoni	..	..	..	..	1 Overseer.
	Mbaleni Kubwa ..	38,422	9,515	16,663	17,177	5 Asst. „
	Mbaleni Ndogo ..	..	..	..	..	7 Headmen.
	Mkanyageni ..	..	..	..	..	..
	Mahonda	..	..	..	..	..
6	Dunga	..	..	..	..	1 Overseer.
	Mpapa	9,351	855	28,235	19,474	4 Asst. „
	Koani	..	..	..	..	4 Headmen.
	Mgongowangamia ..	..	..	..	..	..
	Total ..	109,232	22,436	137,717	124,095	6 Overseers. 20 Asst. „ 33 Headmen.

GOVERNMENT PLANTATIONS.

Groups Tabulated.—(*contd.*)

Group No.	Plantation treated.	Trees.				Overhead Staff.
		Cloves.		Coconuts.		
		Bearing.	Young.	Bearing.	Young.	
	Pemba.					
1	Mtangatwani ..	..	..	..	..	..
	Makue	..	..	..	..	..
	Chwaka	..	..	..	..	..
	Finga	..	..	..	..	..
	Kiuyu	..	..	..	..	..
	Kiswani	..	..	..	..	..
	Makoudeni ..	..	..	..	..	..
	Mpoua	..	..	..	..	..
	Kichanjani ..	..	..	..	..	1 Overseer.
	Kizimbani ..	7,916	1,168	3,914	1,319	1 Asst. ,,
	Kisaoni	..	..	..	..	4 Headmen.
	Bomani	..	..	..	..	..
	Fueni	..	..	..	..	..
	Kitutia	..	..	..	..	..
	Wakf	..	..	..	..	..
	School	..	..	..	..	..
	Mkanjuni	..	..	..	..	..
2	Tundaua	..	..	..	..	..
	Wesha	..	..	..	..	1 Overseer.
	Kungeni	4,969	2	10,795	3,792	1 Asst. ,,
	Kichwani	..	..	..	..	3 Headmen.
	Chakechake ..	..	..	..	..	..
3	Fufuni	..	..	..	..	1 Overseer.
	Kwamacho ..	9,004	373	1,580	1,281	1 Asst. ,,
	Michenzani ..	..	..	..	..	4 Headmen.
	Mkoani	..	..	..	..	..
		21,889	1,543	16,289	6,392	3 Overseers. 3 Asst. ,, 11 Headmen.

GOVERNMENT PLANTATIONS.

Survey of clove harvest returns, 1924/25.

Shamba.	Bearing trees.	Green Cloves.			Dry Cloves.		Dry Stems lbs.
		lbs. Picked.	Amount spent. Rs.	cts.	lbs. Produced.	lbs. per tree.	
ZANZIBAR							
Marseilles ..	16,772	272,904	7,517	67	74,674	4·45	19,248
Basra ..	6,911	102,103	2,931	41	34,871	5·05	8,525
Kinaoni ..	3,217	42,691	1,301	03	16,327	5·07	2,058
Kitumba ..	1,120	46,017	1,357	63	10,792	9·63	2,380
Koani ..	3,263	75 863	2,08	53	10,866	3·32	1,937
Dunga ..	4,182	165,497	4 376	36	48,857	11·68	12,0 8
Kizimbanis ..	9,329	93,792	2,678	08	12,976	2·46	4,416
Mlangos ..	10,989	157,692	4,338	02	45,061	4·10	10,411
Kipange ..	4,612	34,403	941	73	6,689	1·44	1,455
Kinuni Moshi ..	1,979	29,625	839	25	8,253	4·17	2,041
Bumbwi Sudi ..	2,224	28,261	878	35	6,528	2·93	1,354
Selem ..	13,338	311,485	10,211	43	96,677	7·25	15,867
Mahonda ..	5,739	97,869	3,026	72	30,576	5·32	5,615
Mbaleni Kubwa ..	4,777	82,017	2,3 0	94	21,781	4·54	3,456
Mbaleni Ndogo ..	1,813	76,722	2,319	38	15,571	8·58	2,754
Kitope ..	6,280	56,118	1,624	75	15,649	2·49	3,163
Mkanyageni ..	5,925	163,641	4,776	73	53,748	9·07	10,471
Kidichi and Mdo ..	2,942	42,589	1,138	22	13,955	4·74	3,617
Mgongowangamia ..	1,631	23,756	595	19	5,652	3·46	1,584
Mazizini Group ..	126	4,493	105	48	1,358	10 78	372
Total ..	107,304	1,907,543	55,437	90	540,866	5·04	112,822
PEMBA.							
Fufuni ..	7,747	146,895	3,922	98	44,413	5·73	10,576
Tundaua ..	4,135	41,416	1,125	62	14,357	3·47	2,809
Mtangtwani ..	1,334	41,626	1,255	22	10,156	7·61	914
Makondeni ..	2,476	24,462	604	74	6,816	2·75	762
Total ..	15,692	254,399	6,908	56	75,742	4 82	15,061

Table XIII.

Seasonal clove crops from Government plantations:—

Season.	Zanzibar *fraslas.	Pemba fraslas.	Total fraslas.	Percentage of whole crop of the Protectorate.
1910/11	1,818	337	2,155	1.12
1911/12	16,475	4,986	21,461	2.80
1912/13	1,526	153	1,679	1,24
1913/14	10,394	4,624	15,018	2.06
1914/15	14,911	1,973	16,884	3.21
1915/16	11,300	4,192	15,492	1.94
1916/17	18,782	2,175	20,957	4.09
1917/18	3,805	684	4,489	1.51
1918/19	20,314	4,575	24,889	3.02
1919/20	1,770	280	2,050	0.78
1920/21	18,785	2,451	21,236	4.28
1921/22	783	1,569	2,352	0.88
1922/23	18,218	4,750	22,968	2.34
1923/24	2,578	272	2,850	0.91

Crops from previous seasons to 1910 are given in former reports.

*One frasla equals 35 lbs.

Table XIV.

Expenditure and Revenue, 1924.

EXPENDITURE.				REVENUE.	
Administration.		Government Plantations.			
	Rs.		Rs.		Rs.
Personal Emoluments	1,06,305	Personal Emoluments	68,995	Cloves	96,168
Boarding of 6 pupils at Machui	858	Boundary Marks and Survey accessories	238	Coconuts	1,46,087
Incidental Expenses	1,733	Incidental Expenses	523	Miscellaneous	1,724
Laboratory Equipment	87	Labour for Clove picking and drying	74,310	Rent of leased plantations	2,700
Passages	2,466	Labour for coconut gathering	1,099	Ground Rents on Native food crop	1,906
Purchase of Materials and Tools	7,135	Labour for cultivation of Plantations	1,41,322	Sundries	5,188
Travelling and Transport	9,663	Maintenance of plantation Houses	7,289	Value of Stocks of Cloves and stems in hand	3,56,000
Electric Lighting of Hall	174	Purchase of Seeds	1,763		
Bonus to Clove Growers	3,71,674*	Purchase of Material and Tools	8,192		
Bonus for planting young trees	47,159†	Rations and Equipmnet for Harvest labour	115		
Labour for Clove Nurseries	11,590	Travelling and Transport	6,595		
Other Special Expenditure	14,473				
Total Rs.	5,73,317	Total Rs.	3,10,441	Total Rs.	6,09,773

* Includes Rs. 16,791·50 arrears of previous year.

† Includes Rs. 24,558 payments on 1922. plantings.

GOVERNMENT PLANTATIONS.

List of Plantations, Cloves and Coconuts on each, whether operated or leased. 1924.

PLANTATION.	Cloves.			Coconuts.			Licencees cultivating Native food crops.			Total Revenue Rs.	Remarks.
	Bearing trees	Operated value Rs.	Leased rent Rs.	Bearing trees	Operated value Rs.	Leased rent Rs.	Licences	Pengeles	Rent Rs.		
ZANZIBAR.											
Basra ..	6,911	23,097	...	1,327	...	1,560	2	22	3	24,660	
Betelmal Kubwa ...	134	...	...	7,572	...	2,700	...	...	...	2,700	Leased for 25 years from
,, Ndogo ...	61	...	99	762	...	620	...	...	..	719	1st June, 1906.
Betelras ...	46			4,980			14	149	27		
Marhubi ..				1,432							
Mtoni ...	259	908	300	10,068	6,039	13,770				21,139	
Kibweni ..	3			1,501			7	45	11		
Walezo and Chumbuni ...	156			615		84					
Bumbwi Sudi ...	2,057	4,666		884	...	1,450	18	153	29	6,215	
Kichwele ...	167			116	...	70	...	...	...		
Chuini ...	...	...	...	1,203	...		31	315	79		
Bomani ..	...	...	...	732	...		...	...	...		
Kama ...	...	...	...	683	...	4,650	...	...	...	4,729	
Mkunguni ...	...	.	...	1,543	...		...	...			
Nyanjale ...	45	...	...	1,655	...		...	...	...		
Chukwani ...	...	...	...	6,310	...	6,500	35	754	86	6,586	
Chwaka ...	...	...	...	160	...	310	...	...	...	310	
Dunga ...	4,182	28,765	...	14,500	...	9,000	45	556	116	3,7881	
Kidichi and Mdo ...	2,942	9,624	...	8,261	...	10,100	...	...	...	19,724	
Kidogobasi ...	53	with Koani	...	140	...	144	...	...	...	144	
Kinaoni ...	3,217	11,138	...	8,858	...	4,100	25	352	57	15,295	
Kinuni Moshi ...	1,979	5,524	...	1,729	...	1,250	85	709	177	6,951	
Carried forward ...	22,212	83,722	399	75,031	6,039	56,308	262	3,055	585	147,053	

List of Plantations, Cloves an Coconuts on each, whether operated or leased, 1924.—(*Continued.*)

PLANTATION.	Cloves			Coconuts.			Licencees cultivating Native food crops.			Total Revenue	Remarks.
	Bearing trees	Operated value Rs.	Leased rent Rs.	Bearing trees	Operated value Rs.	Leased rent Rs.	Licences	Pengeles	Rent Rs.	Rs.	
Brought forward ...	22,212	83,922	399	75,031	6,039	56,308	262	3,055	585	147,053	
Kizimbani Kubwa ...	7,016			3,685		5,300					
„ Ndogo ...	200	15,618	...	1,572	...		59	600	84	21,662	
Bumbwi Kizimbani ...	2,113			736		660	...	...	...		
Kipange ...	4,642	6,407	...	1,294	...	1,255	3	27	4	7,666	
Kitope ...	6,280	14,113	...	2,424	...	1,850	12	120	33	16,461	
Pangeni and Gonjoni ..	550			560	...	465					
Kitumba ...	1,120	6,535	...	3,410	...	3,420	57	625	126	10,081	
Koani ...	3,268	6,456	...	4,000	...	4,600	5	46	15	11,071	
Ma ondua ...	5,739	36,102	...	1,777	...	1,550	...	...	...	37,652	
Mangapwani ...		...	...	650	...	700	...	...	...	700	
Marseilles ...	7,945			12,056	...	10,100	16	259	30		
Manyame ...	2,250			2,124	...	1,020	2	14	4		
El-Hattera ...	4 907	56,086	...	4,001	...	1,720	13	125	26	75,598	
Darajani ...	1,670			2,650	...	3,010	30	362	64		
Miwani ...	672			7,629	...	3,452	38	584	86		
Mazizini ...	23			1,614	...	2,250	46	644	114		
Kihunani ..	...			181	...	380	...	...	...		
Gulioni ...	...			91	with Sebleni		...	...	...		
Migombani ...	96	1,203	...	354	...	310	10	112	25	8,768	
Kisaoni ..	2			2,470	...	3,200	3	29	4		
Nyamgombe ...	5			577	...	604	25	285	57		
Sebleni ...	.			257	...	405	22	247	51		
Ziwani ...	72			160	...	165	...	...	..		
Carried forward ...	70,782	226,242	399	129,303	6,039	102,724	603	7,134	1,308	336,712	

List of Plantations, Cloves an Coconuts on each, whether operated or leased, 1924.—(*Continued.*)

PLANTATION.	Cloves.			Coconuts.			Licencees cultivating Native food crops.			Total Revenue	Remarks.
	Bearing trees	Operated value Rs.	Leased rent Rs.	Bearing trees	Operated value Rs.	Leased rent Rs.	Licences	Pengeles	rent Rs.	Rs.	
Brought forward ...	70,782	226,242	399	129,303	6,039	102,724	603	7,134	1,308	336,712	
Mbaleni Kubwa ...	4,777	17,144		921	...	1,550	8	79	14	18,708	
Mbaleni Ndogo ...	1 813	15,873	...	776	...	1,075	5	83	14	16,962	
Mgongowangamia ...	1.631	4,791	...	912	. .	760	...	...	...	5,551	
Mkanyageni ...	5,925	44,605	...	901	...	1,100	43	343	106	45,811	
Mkokotoni ...	...	...	...	776	1,327	...	...	...	...	1,327	
Mianzini ...	...	...	...	125	...	270	...	...	...	270	
Mlango Kubwa ..	6,910	31,505	...	1,381	...	2,460	16	442	55	35,024	
„ Ndogo ...	4,079			768	...	1,004					
Mpapa ..	270	122	405	8.823	...	8,600	124	2,534	375	9,503	
Mwembeladu ...	...	...	...	985	...	1,857	...	...	...	1,857	
Mwera bridge ...	..	...	...	60	...	132	...	...	...	132	
Selem ...	13,338	72,362	...	9,304	...	9,992	18	220	34	82,388	
Total ...	109,525	412,644	804	155,035	7,366	131,524	817	10,835	1.906	554,244	
PEMBA.											
School ...	519	168	450	71	34	40	...	...	...	692	
Bomani ...	153	86	180	27	...	7	...	...	...	223	
Kizimbani ...	55	...	65	65	...	48	...	...	...	113	
Wakf ...	305	178	220	67	...	12	...	...	...	410	
Fueni ...	409	...	200	38	...	9	...	...	...	209	
Mpona ...	1,300	...	600	204	...	30	...	...	...	630	
Mkondeni ...	2,476	4,036	...	123	...	40	...	...	...	4,076	
Carried forward ...	5,217	4,468	1,665	595	34	186	...	...	...	6,253	

List of Plantations, Cloves and Coconuts on each, whether operated or leased, 1924.—(*Continued.*)

PLANTATION.	Cloves.			Coconuts.			Licencees cultivating Native food crops.			Total Revenue	Remarks.
	Bearing trees	Operated value Rs.	Leased rent Rs.	Bearing trees	Operated value Rs.	Leased rent Rs.	Licences	Pengeles	Rent Rs.	Rs.	
Brought forwa d ...	5,217	4,486	1,665	595	34	186	...	...	...	6,353	
Kisiwani ...	50	...	15	...	...	...	...	...	...	15	
Mtangatwani ...	1,334	6,039	...	706	...	400	...	...	...	6,139	
Makue ...	1,269	13	280	70	...	30	...	...	...	323	
Ch vaka ...	...	...	...	2,000	...	900	...	...	...	900	
Kic a jani ...	...	...	...	270	...	145	...	...	...	145	
F nga ...	...	...	...	64	...	10	...	...	...	10	
Ki-a ni ...	...	...	...	190	...	8	...	...	...	8	
Chake chake ...	...	...	...	94	...	26	...	...	...	26	
Kungeni ...	592	...	510	273	46	...	...	..	...	556	
Ki nwani ...	...	...	...	386	...	30	...	...	..	30	
Tundaua ...	4,135	8,524	...	9,477	...	4,200	...	...	...	12,724	
Wesh ...	242	...	130	565	...	450	...	...	...	580	
Mkoani ...	180	...	400	172	...	80	...	...	...	480	
Fufuni ...	7,747	26,588	..	1,197	...	500	...	...	...	27,088	
Mchenzani ...	490	...	330	116	...	120	...	...	...	450	
Kwamacho ...	587	...	650	95	...	32	...	...	...	682	
Total ...	21,843	45,632	3,980	16,270	80	7,117	...	...	...	56,809	
Total Zanzibar & Pemba ...	131,368	458,276	4,784	171,305	7,446	138,641	817	10,835	1,906	613,203	

Table XV.

Comparison of actual revenue and expenditure on the Government plantations year by year:—

Year.	Revenue.				Expenditure.				
	Cloves.	Coconuts.	Sundry.	Total.	Personal emoluments.	Cultivation.	Clove harvest.	Sundry.	Total.
	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.	Rs.
1910	35,636	33,009	36,289	1,04,934	10,932	41,839	6,081	8,736	67,588
1911	1,01,313	41,576	33,604	1,76,493	9,362	54,780	28,366	10,127	1,02,635
1912	1,63,042	60,443	30,988	2,54,473	14,684	62,238	29,160	15,809	1,21,891
1913	1,85,185	72,771	29,053	2,87,009	17,962	62,554	38,391	15,643	1,34,550
1914	67,000	78,745	29,818	1,75,563	32,159	59,603	36,309	12,577	1,40,648
1915	1,77,977	74,964	25,800	2,78,741	41,660	65,522	55,439	5,785	1,68,406
1916	1,66,391	74,770	21,039	2,62,200	44,220	70,485	63,146	6,878	1,84,729
1917	2,50,348	1,01,511	16,321	3,68,180	41,492	79,149	23,535	6,944	1,51,120
1918	2,13,030	1,19,606	18,263	3,50,899	51,643	90,587	63,404	12,414	2,18,048
1919	2,08,491	1,27,650	15,708	3,51,849	55,879	1,15,741	37,426	11,229	2,20,275
1920	95 524	1,57,085	9,900	2,62,509	51,727	1,24,638	35,522	15,080	2,26,967
1921	3,61,736	1,47,999	18,456	5,28,191	65,410	1,44,979	98,434	21,984	3,30,807
1922	70,731	1,17,499	39,211	2,27,441	69,096	1,54,429	81,531	21,822	3,26,878
1923	5,01,149	1,45,604	13,642	6,60,395	65,839	1,60,919	64,628	27,380	3,18,766
1924	4,52,168(1)	1,46,087(2)	11,518	6,09,773	68,995	1,41,322	74,310	25,814	3,10,441

(1) Including value of Stock of Cloves and Stems in hand Rs. 2,56,000.

(2) Including value of Copra in hand Rs. 6,039.

Table XVI.

Meteorological observations, 1924:—

Month.	Temperature.								Rainfall.								
	Zanzibar Town.				Pemba, Banani.				Zanzibar.						Pemba.		
	Means of.		Absolute.		Means of.		Absolute.										
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Town.	Selem.	Kidiche.	Koani.	Mkokotoni	Chwaka.	Banani.	Weti.	Kigomache.
January ...	88·0	80·4	91·7	78·1	88·5	79·3	92·0	78·0	2 74	2·19	2 47	2·69	4·42	2·61	3·30	5·53	0·00
February ...	88·0	79·4	91·3	71·8	89·5	79·9	91·5	75 0	8·23	5 56	6·55	5·81	3·81	6·27	4·33	4·45	2·78
March ...	87·6	79·7	90·1	76·2	88·8	79·3	92·0	70·0	5·64	10 66	9·77	13·24	8·07	5·35	9·15	11·22	4·56
April ...	85·1	77·4	89·5	71·9	86·5	78·1	91·0	73·0	15·65	10·96	13 60	15·40	16·47	20·27	19·43	17·22	15·85
May ...	84·7	76·7	87·1	71·3	85·0	77·4	89·0	74·0	3·34	4·64	5 21	6·05	8·37	6·86	10·02	10·56	12·48
June ...	82·0	74·2	83·9	69·3	83·4	75·4	86·0	71·5	2·61	3·75	4·12	4·44	4·52	3·35	7·97	11·83	9·98
July ...	81·2	72·8	83·9	70·9	83·0	74·1	84 0	73·0	1·33	2 09	2·28	3·57	1·30	1·10	1·54	3·54	2·55
August ...	82·3	73·3	84·2	71·4	83·3	73·9	85·5	73·0	0·19	2·20	1·54	1·20	1·93	0.81	2·00	2·65	3·38
September ...	83·2	73·6	85·5	71·9	84·8	74·7	87·0	73·5	3·38	3·40	1·63	5·23	1 25	0·64	0·38	0·75	4·45
October ...	84·3	75·7	87·2	73·9	86·2	76·0	89·0	74·0	1·19	1·93	2·14	3 90	1·52	1·51	0 52	2·35	5·91
November ...	86·0	77·4	85·2	75·2	86·5	77·2	89·0	74·0	3·20	5·37	4·55	9 79	5 54	1·63	8·94	14·74	2·84
December ...	86·8	79.3	90·2	77·2	87·9	79·0	91·5	77·0	5·55	6·05	6·60	11·35	9 02	1·45	7·58	7·24	2·36
Total ...	84·9	76·6	91·7	69·3	86·1	77·0	92·0	70·0	53·05	58·80	60·46	82·67	66·22	51·85	75·16	92·08	67·14